

MRAC Hamateur Chatter

The Milwaukee Radio Amateurs Club

July 2015 Volume 23, Issue 7

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917



ARRL News Letter

Coming Soon: 146.52 MHz in ARRL VHF Contests



The Arrl has received many comments about the prohibition against using 146.52 MHz during ARRL radio contests. For example, see [The One Frequency You Should Never Use on Field Day](#) and [Mt Herman: SOTA plus VHF Contest](#).

During my presentation on [Mountaintop VHF for SOTA](#) at the [Central States VHF Society Conference](#) in Denver today, I mentioned this is an issue. Basically, I pointed out that Summits On The Air (SOTA) operators often default to the 2m fm calling frequency, which is prohibited for use in the ARRL contests. This gets in the way when mountaintop stations do a combination SOTA and VHF Contest operation.

During my presentation, Brian Mileschosky [N5ZGT](#), ARRL Director of the Rocky Mountain Division, reported that the ARRL has decided to remove the prohibition of 146.52 MHz in VHF contests. It will take some time for this to work its way into the actual rules, so stay tuned for further developments.

This is great news...a cleanup of an unnecessary impediment to VHF contesting. Now, will the CQ Worldwide VHF Contest do the same?

'73 Bob KBOH

Lubricating or Not, Ends of Mast Sections

When setting up a field antenna, use a spray can of silicon or graphite to lubricate the ends of your mast sections. You will find it much easier to disconnect the sections when you are ready to tear down. -- *KB0H*

Most graphite compounds that I've seen are conductive, and should not be used on any kind of electrical connection. Granted, that with extreme care to insure there is NO graphite bridging the shield to the conductor in a coax or other connector, it would not be a problem. BUT, with typical "seepage" and lack of care when applying graphite to an RF assembly, I would advise against using graphite. I use pure silicon grease, available at many auto parts dealers. -- *Alton Higgins, W4VFZ, ARES Emergency Coordinator, Towns County, Georgia; FEMA/ Georgia state EMA ESF2 for Towns County*



MRAC Officers:

Terms Expiring in 2016

- President – Dave, KA9WXN
- V-President– Dan, N9ASA
- Secretary – MBH, KC9CMT
- Treasurer – MBH,,KC9CMT
- Director – Mark, KB9RQZ

Terms Expiring in 2017

- Director – Al, KC9IJJ
- Director – Hal, KB9OZN

**The Club Phone Number
is: (414) 332-MRAC or**

(414) 332- 6 7 2 2

Visit our website at:

www.w9rh.org

Mail correspondence to:

M. R. A. C.
PO Box 26233
Milwaukee, WI
53226-0233

Board of Directors' Minutes

Board of directors meeting called to order at 7.12 pm by Dave Shank, KA9WXN club president.

Director's present: Michael KC9CMT, Dave KA9WXN, Dan, N9ASA, Al KC9IJJ, Mark, KB9QRN, Hal, KB9OZN

Absent: None.

Preliminary Discussion: The Board of Director's minutes were accepted as published in the June HamChatter. The Treasurers report was presented by Michael, KC9CMT. A motion was made by Al, KC9IJJ to accept the Treasurers report as read; Mark, KB9QRN, seconded the motion. The May balance ended with \$19,778.07 in Club accounts. We make \$8.62 a month in CD interest before taking into account the new CD for \$4000 that the club purchased this past March, we will start earning interest on the new CD in May. We still will be sending the ARRL Spectrum Defense Fund \$100 in mid 2015. Work will be done on updating the functionality of the Yahoo group by Dave, WB9BWP. The great Balloon launch was on May 20thth. **The BOD will meet on August 24th at the Menominee Falls Library.** The board is continuing to discuss the idea of serving refreshments at the meetings. The refreshment concession has never been profitable.

We will continue to use the Google spreadsheet for the 2016 swapfest. A place has been reserved for the Makers group Faire this fall for a club special event station. We will be printing approx. 1000 fliers for distribution between now and July 11th in time for the SMARC swapfest.

Meeting programs: The club meeting June 25th will be on favorite Smart phone apps. The September Meeting will be Joe, N9UX giving a presentation about the June HAB launch and recovery. A October meeting about antenna maintenance in preparation for bad weather months was suggested. November meeting - Mesh networks; loading software on wireless access points to gain access to radio bands. Dave, KA9WXN will talk to Don about a program on radio telescopes. What are some things that club members can do during July and August, months when the MRAC does not meet. Getting mentioned on the Ham Nation Podcast would be good press for our 100th Anniversary in 2017. The West Allis ARC is looking for a new meeting place.

Field Day: The MARC field day effort will be at Konkel park in Greenfield again in 2015. Dave, KA9WXN has received a permit that secures our spot. The club has a pneumatic tower this year that will make setup and tear down much easier. AES is donating a TS-590 radio for our FD effort. The board would like to have a working committee on the field day effort for 2016. The MRAC will provide food for people that are part of the encampment, not for guests as in past years.

Special Project Committees & Committee reports:

Repeater Report: The Yaesu Fusion repeater that Yaesu gave the club a great deal on, is still on back order as of June 25th 2015. The cost of this repeater was a real bargain at \$300. Dave, WB9BWP is the repeater trustee and a control operator. The club would like more than one repeater control operator.

A club repeater control operator should be a extra class operator to have the kind of privileges that are necessary to operate field day to its fullest extent. Leroy, WD9HOT wants the authority to reboot the repeater if needed. There have been times when it has acted up.

New Business: The Makers' Faire has accepted our application to be a part of the State Fair Park event. It runs the weekend of the Harvest Faire and draws 35k people. We have asked to be on the Southeast area of the center, where we can be by a door and run cable outside to an antenna setup. The LeFRG group was mentioned has a partner in this venture. MRAC will be having a Board meeting in August while the club is on Summer recess. The clubs' anniversary is in 2017.

We need to start planning event stations for the entire year of 2016/17. Dave, KA9WXN will attempt to generate interest among the membership as to forming a committee to handle planning. Dave, KA9WXN talked to the people from Gold Medal that does embroidery, such as patches, hats, and jackets. A contest to design a new logo for the club for its 100th year celebration. The winner of the contest will get a one year free club membership. Will the logo be for the 100th yr. or for then on. New logos will be picked by a blind election by the membership. The winner should be picked by the November meeting. The contest will be open to club and non-club people, but must hold a Amateur Radio License to be in the contest. Copy to be included in the new Logo, ARRL affiliation, Club 100th year, and callsign with Frequency. Dave, KA9WXN will work on the specifications for the new Logo. The information will be sent out on the Yahoo group page. There has been some talk among the board members regarding a national convention during the 100th anniversary year.

Swapfest Committee: The club would like to promote the 10-10 international radio club. Dan or Dave are going to contact American Science and Surplus, and the Markers' people about having a table at the MRAC swapfest in February of 2016. Tickets will be printed in December, with advanced table sales and ticket orders mailed the last week on December. Photos should be taken of all club activities and uploaded to the club Facebook page and copied to the newsletter editor for insertion into the paper. There should be a newly paved parking lot at the swapfest site by February 2016.

Special Projects: The club needs someone to take over the FM simplex contest for February of 2016. The club really needs PR and recruitment, business cards have been printed and will be handed out at all personal activities. The club would like to schedule special a outing in the park, on some week night when the club will setup a station and perhaps grill out. Joe, N9UX has postulated about doing another balloon launch in 2016.

The club needs to get started working on the design of the booth that we will have on Saturday Sept. 26th, and Sunday Sept. 27th, during the Makers Faire, which is held in conjunction with Harvest Fair, at the Wisconsin State Fair Park in 2015.

The MRAC has been placed on a waiting list for the State Adopt A Highway program for our nearby area of Milwaukee County. The MRAC/MAARS joint picnic will be on August 8th, 2015 at Greenfield park, picnic area number 2, a permit has already been issued for the picnic.

Clubs throughout the country need to use the spectrum that they have been given. The 220mhz band is not used very often in the Milwaukee area. A Club calendar is a project that the Board of Directors' would like to pursue. We would like to organize meeting programs far enough in advance that a calendar of programs can be produced.

A motion was made to adjourn the meeting at 8:38 pm by Dave, KA9WXN seconded by Dan, N9ASA. Meeting adjourned at 8:42 pm.

The Library room will be returned to an orderly condition as it was when we came in.

The Experimenters Bench

A Pulse width modulation (PWM) charge controller

The technology for solar photovoltaic battery charge controllers has advanced dramatically over the past five years. The most exciting new technology, PWM charging, has become very popular. Some frequently asked questions about PWM [battery charging](#) are addressed here.

What is PWM?

Pulse Width Modulation (PWM) is the most effective means to achieve [constant voltage](#) battery charging by switching the solar system controller's power devices. When in PWM regulation, the current from the solar array tapers according to the battery's condition and recharging needs.

Why is there so much excitement about PWM?

Charging a battery with a solar system is a unique and difficult challenge. In the old days, simple on-off regulators were used to limit battery outgassing when a [solar panel](#) produced excess energy. However, as solar systems matured it became clear how much these simple devices interfered with the charging process.

The history for on-off regulators has been early battery failures, increasing load disconnects, and growing user dissatisfaction. PWM has recently surfaced as the first significant advance in solar [battery charging](#).

PWM solar chargers use technology similar to other modern high quality battery chargers. When a battery voltage reaches the regulation set point, the PWM algorithm slowly reduces the charging current to avoid heating and gassing of the battery, yet the charging continues to return the maximum amount of energy to the battery in the shortest time. The result is a higher charging efficiency, rapid recharging, and a healthy battery at full capacity.

In addition, this new method of solar battery charging promises some very interesting and unique benefits from the PWM pulsing. These include:

- 1) Ability to recover lost battery capacity and desulfate a battery.
- 2) Dramatically increase the charge acceptance of the battery.
- 3) Maintain high average battery capacities (90% to 95%) compared to on-off regulated state-of-charge levels that are typically 55% to 60%.
- 4) Equalize drifting battery cells.
- 5) Reduce battery heating and gassing.
- 6) Automatically adjust for battery aging.
- 7) Self-regulate for voltage drops and temperature effects in solar systems.

How does this technology help me?

The benefits noted above are technology driven. The more important question is how the PWM technology benefits the solar system user.

Jumping from a 1970's technology into the new millennium offers:

- **Longer battery life:**
- **reducing the costs of the solar system**
- **reducing battery disposal problems**
- **More battery reserve capacity:**
- **increasing the reliability of the solar system**
- **reducing load disconnects**
- **opportunity to reduce battery size to lower the system cost**

Greater use of the [solar array](#) energy:

get 20% to 30% more energy from your [solar panels](#) for charging

- **stop wasting the solar energy when the battery is only 50% charged**
- **opportunity to reduce the size of the solar array to save costs**

Greater user satisfaction:

get more power when you need it for less money!!

Are all of these benefits tested and proven?

A great deal of testing and data supports the benefits of PWM. More information is attached that describes the technology and various studies.

Morningstar will continue our ongoing test programs to refine the PWM charging technology. Over time, each of these benefits will be improved and more clearly defined with numbers and graphs.

Are all PWM chargers the same?

Buyer beware! Many solar charge controllers that simply switch FETs differently than the on-off algorithm claim to be a PWM charger. Only a few controllers are actually using a [Pulse Width](#) Modulated (PWM) [constant voltage](#) charging algorithm. The rest are switching FETs with various algorithms that are cheaper and less effective. Morningstar was awarded a patent in 1997 for a highly effective battery charging algorithm based on true PWM switching and constant voltage charging. All Morningstar products use this patented algorithm.

1. Ability to recover lost battery capacity

According to the [Battery Council International](#), 84% of all lead acid-battery failures are due to sulfation. Sulfation is even more of a problem in solar systems, since opportunity charging differs significantly from traditional battery charging. The extended periods of undercharging common to solar systems causes grid corrosion, and the battery's positive plates become coated with sulfate crystals.

Morningstar's PWM pulse charging can deter the formation of sulfate deposits, help overcome the resistive barrier on the surface of the grids, and punch through the corrosion at the interface. In addition to improving charge acceptance and efficiency, there is strong evidence that this particular charging can recover capacity that has been lost in a solar battery over time. Some research results are summarized here. A 1994 paper by CSIRO, a leading battery research group in Australia, notes that pulsed-current charging (similar to Morningstar controllers) has the ability to recover the capacity of cycled cells. The sulfate crystallization process is slowed, and the inner corrosion layer becomes thinner and is divided into islands. The electrical resistance is reduced and capacity is improved. The paper's conclusion is that pulse charging a cycled battery can evoke a recovery in battery capacity.

Another paper, a [Sandia National Labs](#) study in 1996, summarizes testing of a [VRLA battery](#) that had permanently lost over 20% of its capacity. Conventional constant voltage charging could not recover the lost capacity. Then the battery was charged with a Morningstar SunSaver controller, and much of the battery capacity has been recovered.

Finally, Morningstar has been testing for capacity recovery. An attached graph shows how a battery that was dead recovered much of its lost capacity after extended charging with a SunLight controller.

After the test was set-up, for 30 days the solar lighting system produced virtually no lighting since the system went directly into LVD each night. The battery was very old and about to be recycled. Then, the load began to turn on longer each night as shown on the graph. For the next 3 months the battery capacity steadily increased. This test and other capacity recovery tests are ongoing at Morningstar.

2. Increase battery charge acceptance

Charge acceptance is a term often used to describe the efficiency of recharging the battery.

Since solar batteries are constantly recharging with a limited energy source (e.g. opportunity charging with available sunlight), a high charge acceptance is critical for required battery reserve capacity and system performance.

Solar PV systems have a history of problems due to poor battery charge acceptance. For example, a study of four National Forest Service lighting systems using on-off shunt controllers clearly demonstrated the problems caused by low charge acceptance. The batteries remained at low charge states and went into LVD every night, but the battery typically accepted only about one-half the available [solar energy](#) the next day during charging. One system only accepted 10% of the energy available from the array between 11:00 AM and 3:00 PM!

After extensive study, it was determined that the problem is in control strategy, not in the battery. Further, the battery was capable of accepting that charge, but it wasn't being charged. Later a system similar in all respects except using a constant voltage [charge controller](#) was studied. In this case, the battery is being maintained in an excellent [state of charge](#).

A later study specific to Morningstar's PWM constant voltage charging by Sandia found that the SunSaver's increased charge acceptance is due to the PWM charge algorithm. Tests showed that the SunSaver provided 2 to 8% more over-charge compared to a conventional DC constant voltage charger.

A number of tests and studies have demonstrated that Morningstar's PWM algorithm provides superior battery charge acceptance. An attached graph compares the recharging ability of a Morningstar SunSaver PWM controller with a leading on-off regulator. This study, done by Morningstar, is a side-by-side test with identical test conditions. The PWM controller put 20% to 30% more of the energy generated by the [solar array](#) into the battery than the on-off regulator.

3. Maintain high average battery capacities

A high battery state-of-charge (SOC) is important for battery health and for maintaining the reserve storage capacity so critical for solar system reliability. An [FSEC](#) Test Report noted that the life of a [lead-acid battery](#) is proportional to the average state-of-charge, and that a battery maintained above 90% SOC can provide two or three times more charge/discharge cycles than a battery allowed to reach 50% SOC before recharging.

However, as noted in the previous section, many solar controllers interfere with the recharging of the battery. The FSEC study noted at the end of the report that the most significant conclusion is that some controllers did not maintain the battery SOC at a high level, even when loads were disconnected. In addition, a comprehensive 23 month study of SOC factors was reported by Sandia in 1994. It was learned that the regulation set point has little effect on long-term SOC levels, but the reconnect voltage is strongly correlated to SOC. Five on-off regulators and two quasi constant voltage regulators were tested (Morningstar controllers were not developed when this test started). A summary of the SOC results follows:

- 3 on-off regulators with typical hysteresis averaged between 55% and 60% SOC over the 23 month period
 - 2 on-off regulators with tighter hysteresis (risking global instability) averaged about 70% SOC
 - the 2 -constant voltage controllers with hysteresis of 0.3 and 0.1 volts averaged close to 90% SOC (note that Morningstar controllers have a hysteresis of about 0.020 volts)
- Sandia concluded that the number of times a system cycles off and on during a day in regulation has a much stronger impact on battery state-of-charge than other factors within any one cycle. Morningstar's PWM will cycle in regulation 300 times per second.

It would be expected that batteries charged with Morningstar's PWM algorithm will maintain a very high average battery state-of-charge in a typical solar system. In addition to providing a greater reserve capacity for the system, the life of the battery will be significantly increased according to many reports and studies.

4. Equalize drifting battery cells

Individual battery cells may increasingly vary in charge resistance over time. An uneven acceptance of charge can lead to significant capacity deterioration in weaker cells. Equalization is a process to overcome such unbalanced cells. The increased charge acceptance and capacity recovery capabilities of PWM pulse charging will also occur at lower charging voltages. Morningstar's PWM pulse charging will hold the individual battery cells in better balance where equalization charges are not practical in a solar system. More testing will be done to study the potential benefits in this area.

5. Reduce battery heating and gassing

Clearly battery heating/gassing and charge efficiency go hand in hand. A reduction in transient gassing is a characteristic of pulse charging. PWM will complete the recharging job more quickly and more efficiently, thereby minimizing heating and gassing.

The ionic transport in the battery electrolyte is more efficient with PWM. After a charge pulse, some areas at the plates become nearly depleted of ions, whereas other areas are at a surplus. During the off-time between charge pulses, the ionic diffusion continues to equalize the concentration for the next charge pulse.

In addition, because the pulse is so short, there is less time for a gas bubble to build up. The gassing is even less likely to occur with the down pulse, since this pulse apparently helps to break up the precursor to a gas bubble which is likely a cluster of ions.

6. Automatically adjust for battery aging

As batteries cycle and get older, they become more resistant to recharging. This is primarily due to the sulfate crystals that make the plates less conductive and slow the electrochemical conversion.

However, age does not affect PWM constant voltage charging.

The PWM constant voltage charging will always adjust in regulation to the battery's needs. The battery will optimize the current tapering according to its [internal resistance](#), recharging needs, and age. The only net effect of age with PWM charging is that gassing may begin earlier.

7. Self-regulate for voltage drops and temperature effects

With PWM constant voltage charging, the critical finishing charge will taper per the equation $I = Ae^{-t}$. This provides a self-regulating final charge that follows the general shape of this equation.

As such, external system factors such as voltage drops in the system wires will not distort the critical final charging stage. The [voltage drop](#) with tapered charging current will be small fractions of a volt. In contrast, an on-off regulator will turn on full current with the full voltage drop throughout the recharging cycle (one reason for the very poor charge efficiency common to on-off regulators).

Because Morningstar controllers are all series designs, the FET switches are mostly off during the final charging stages. This minimizes heating effects from the controller, such as when they are placed inside enclosures. In contrast, the shunt designs will reach maximum heating in the final charging stage since the shunt FETs are switching almost fully on. In summary, the PWM constant voltage series [charge controller](#) will provide the recharging current according to what the battery needs and takes from the controller. This is in contrast to simple on-off regulators that impose an external control of the recharging process which is generally not responsive to the battery's particular needs.

Severe Weather Awareness



North American summers are hot; most summers see heat waves in one or more parts of the United States. Heat is one of the leading weather-related killers in the United States, result-

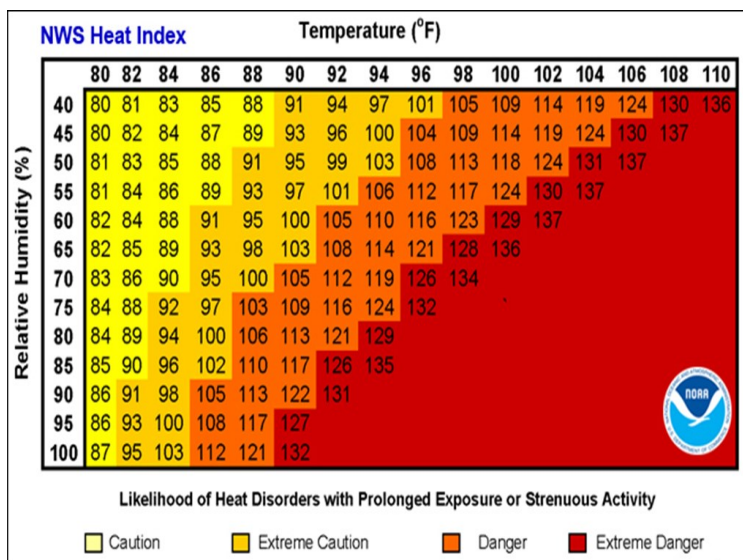
ing in hundreds of fatalities each year and even more heat-related illnesses.

Heat: Summer's #1 Killer

Twenty years ago this summer, a heat wave struck Chicago, leading to the deaths of nearly 750 people during a single week. The Chicago heat wave of 1995 tragically demonstrated that heat and humidity can be a deadly combination. These factors put a lot of stress on the human body and can lead to serious health conditions such as heat exhaustion, heat stroke, or even death. The more extreme the temperature, the shorter the amount of exposure time needed to fall ill.

Heat waves have the potential to cover a large area, exposing a high number of people to a hazardous combination of heat and humidity. In fact, heat is typically the leading cause of weather related fatalities each year. High temperatures and humidity are common in numerous locations across the country. However, when temperatures spike and humidity is on the rise in areas of the U.S. that are not accustomed to these conditions, people don't necessarily understand that they need to take action to stay safe.

The [Heat Index](#) is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature. As you can see from the chart below, high humidity levels combined with hot conditions can be extremely dangerous. Limit your outdoor activities during these periods.



Here are some additional steps you can take to [stay safe during a heat wave](#):

- Drink plenty of water or other non-caffeinated and non-alcoholic beverages.
- Wear loose, lightweight clothing.
- Find a place to cool off. If you don't have air conditioning at home then spend some time in a public location that does, like a shopping mall or a library.

Avoid spending time outside during the peak heat of the day (typically 10am – 3pm). If you exercise outdoors, avoid the worst of the heat by going early in the morning. If you work outdoors, check out the [heat safety tips for workers](#) from the Occupational Safety and Health Administration.

UV Index: How to use it!

As described in other sections of the *UV information*, the UV Index is a forecast of the probable intensity of skin damaging ultraviolet radiation reaching the surface during the solar noon hour (11:30-12:30 local standard time or 12:30-13:30 local daylight time). The greater the UV Index is the greater the amount of skin damaging UV radiation. How much UV radiation is needed to actually damage one's skin is dependent on several factors. But in general the darker one's skin is, (that is the more melanin one has in his/her skin) the longer (or the more UV radiation) it takes to cause erythema (skin reddening). [Figure 1](#) shows a look up chart where by one can cross check his/her propensity to burn versus the UV Index. For those who always burn and never tan the times to burn are relatively short compared to those who almost always tan.

The EPA has devised general guidelines as far as what to do to protect oneself from overexposure to UV radiation. These are shown in the table below.

Exposure Category	UV Index	Protective Actions
Minimal	0, 1, 2	Apply skin protection factor (SPF) 15 sun screen.
Low	3, 4	SPF 15 & protective clothing (hat)
Moderate	5, 6	SPF 15, protective clothing, and UV-A&B sun glasses.
High	7, 8, 9	SPF 15, protective clothing, sun glasses and make attempts to avoid the sun between 10am to 4pm.
Very High	10+	SPF 15, protective clothing, sun glasses and avoid being in the sun between 10am to 4pm.

Common Heat Related Illnesses

During extremely hot and humid weather, your body's ability to cool itself is challenged. When the body heats too rapidly to cool itself properly, or when too much fluid or salt is lost through dehydration or sweating, body temperature rises and you or someone you care about may experience a heat-related illness. It is important to know the symptoms of excessive heat exposure and the appropriate responses. The [Centers for Disease Control and Prevention](#) provides a list of warning signs and symptoms of heat illness, and recommended first aid steps. Some of these symptoms and steps are listed below. Heat cramps may be the first sign of heat-related illness, and may lead to heat exhaustion or stroke.

Heat Cramps

Symptoms:

- Painful muscle cramps and spasms usually in legs and abdomen
- Heavy sweating

First Aid:

- Apply firm pressure on cramping muscles or gently massage to relieve spasm.
- Give sips of water unless the person complains of nausea, then stop giving water

Heat Exhaustion

Symptoms:

- Heavy sweating
 - Weakness
 - Cool, pale, clammy skin
 - Fast, weak pulse
 - Possible muscle cramps
 - Dizziness
 - Nausea or vomiting
- Fainting

First Aid:

- Move person to a cooler environment
- Lay person down and loosen clothing
- Apply cool, wet cloths to as much of the body as possible
- Fan or move victim to air conditioned room
- Offer sips of water

If person vomits more than once, seek immediate medical attention.

Heat Stroke

Symptoms:

- Altered mental state
 - One or more of the following symptoms: throbbing headache, confusion, nausea, dizziness, shallow breathing
 - Body temperature above 103°F
 - Hot, red, dry or moist skin
 - Rapid and strong pulse
- Faints, loses consciousness

First Aid:

- Heat stroke is a severe medical emergency. Call 911 or get the victim to a hospital immediately. Delay can be fatal.
 - Move the victim to a cooler, preferably air-conditioned, environment.
 - Reduce body temperature with cool cloths or bath.
 - Use fan if heat index temperatures are below the high 90s. A fan can make you hotter at higher temperatures.
- Do NOT give fluids.

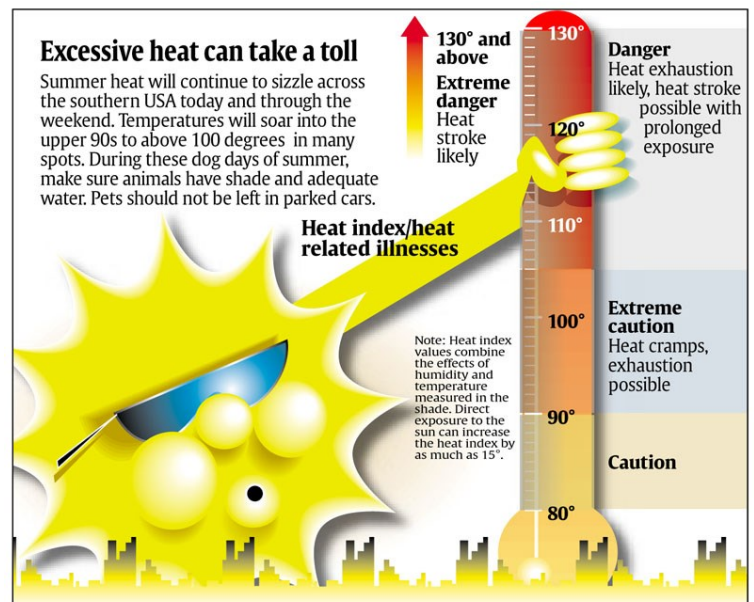
Children, Pets and Vehicles

Each year, dozens of children and untold numbers of pets left in parked vehicles die from hyperthermia. Hyperthermia is an acute condition that occurs when the body absorbs more heat than it can handle. Hyperthermia can occur even on a mild day. Studies have shown that the temperature inside a parked vehicle can rapidly rise to a dangerous level for children, pets and even adults. Leaving the windows slightly open does not significantly decrease the heating rate. The effects can be more severe on children because their bodies have not developed the ability to efficiently regulate its internal temperature.

The sun's shortwave radiation (yellow in figure below) heats objects that it strikes. For example, a dark dashboard or seat can easily reach temperatures in the range of 180 to over 200°F. These objects (e.g., dashboard, steering wheel, child seat) heat the adjacent air by conduction and convection and also give off longwave radiation (red in figure below) which is very efficient at warming the air trapped inside a vehicle. Shown below are time lapse photos of thermometer readings in a car over a period of less than an hour. As the animation shows, in just over 2 minutes the car went from a safe temperature to an unsafe temperature of 94.3°F. This demonstration shows just how quickly a vehicle can become a death trap for a child.

Tips for Parents and Caregivers

- ☐ Touch a child's safety seat and safety belt before using it to ensure it's not too hot before securing a child
- ☐ Never leave a child unattended in a vehicle, even with the windows down, even for just a minute
- ☐ Teach children not to play in, on, or around cars.
- ☐ Always lock car doors and trunks--even at home--and keep keys out of children's reach.
- ☐ Always make sure children have left the car when you reach your destination. Don't leave sleeping infants in the Car.



Welcome

Tactical situation surrounding A-104 Ha Thanh, June to September 1968
1st Lt, Gary J. Honold, C-1 Intel Officer

First let me talk broadly about the tactical situation around A-104 during the period from June to September 1968.

Early in June the Intelligence assets with C-1 in Da Nang were warning that our sources were mentioning the NVA beefing up bridges in the Laos/Vietnam border area. We warned that it was probably not because the NVA soldier's weight control program had failed, but that the PT-76, Light Amphibious Tank was probably the reason. The powers that be proclaimed that there were no tanks that far south in I Corps....which is probably the same thing they said right up to the point where a PT-76 was doing neutral steers on top of the TOC at Lang Vei (as CPT Frank Willoughby, the Team CO, put it when I knew him as the C-Team S-1 after the battle).

As June and July passed it was harder and harder for the Team to get an operation outside a fairly close proximity to the Camp without running into enough opposition to make it impossible to control anything except a very small portion of the AO.

Somewhere near the 24th of August it was decided that a Mobile Strike Force Company would be sent to help the Team at A-104.

My boss, the C-Team S-2, came to me late in the morning of approximately the 24th of August saying that the Mike Force was sending a company to Ha Thanh to reinforce the Camp. He knew, because of my efforts to stay on as the Team XO, that I had a strong interest in the camp and it's U.S. Personnel. He started to ask if I wanted to go in with the company, but before he got the question out I said, "you bet!"

The Mike Force Company consisted of three platoons, mostly Nungs (Chinese Vietnamese), some Cambodes, and a few Montagnards. I joked later that the company gathered together looked like the bar scene from "Star Wars". A Mobile Strike Force LT and a SGT, regularly assigned to the company, took charge of the 1st platoon, I led the 2nd Platoon, and two SGTs, plucked from somewhere, led the 3rd Platoon.

We gathered early that afternoon at the Da Nang Air Field, and assaulted in on Chinook Helicopters to a dry paddy a short distance west of the Camp. After coordinating with the Team at A-104 we went into a night location a "click" or two west of the Camp.

At first light the next morning we started patrolling to the west. Around mid-morning we spotted (what I'm sure was a decoy) a platoon sized group of NVA heading into a small valley. We decided to give chase. First Platoon would actually be the chasers, 3rd Platoon would go down to a small knoll just above the valley to act as a ready reaction force if needed, and 2nd Platoon would secure a section of the high ground above the valley in case things really went badly. First Platoon never made contact. Apparently the NVA had the little knoll the 3rd Platoon staked out registered, or they were a lot better than I gave them credit for. Mortars started raining down on the 3rd platoon, and before long there were only 10 of them left, including the two American Sergeants.

They lost their map in the flight out of there, and a piece of shrapnel had cut the mic cable on the radio while they were trying to use it. They had run a fair distance, had no map, so they didn't have a good idea where they were, and they had no radio. I wasn't immediately aware of their situation until the platoon radioman came up to me pointing at the HT-1 black box "walkie talkie" the indigenious carried saying "Huakey! Huakey! (American! American!). I grabbed the radio, and on the other end were two VERY frightened SGTs and the eight other survivors of the 3rd Platoon. They had no idea where they were. I had no idea where they were.

I got them calmed down a little, and told them I would guide them into my position by firing a shot in the air every 5 minutes, and to home in on the shots. I was just hoping that the NVA didn't have a large force close by, or that their gunners didn't have our location registered as well. I passed the word around the 2nd Platoon about the shots, grimaced, and squeezed off a shot every 5 minutes. The survivors of the 3rd Platoon did home in and link up with the 2nd. Then we started moving down the ridge to get together with the 1st Platoon and get the hell out of there because rumor had it that there could be up to a regiment of NVA roaming around in the vicinity. We kept moving until after dark before we set out a perimeter and took a breather. Indications were that we were loosely surrounded.

After it was very, very dark we decided to E & E off the terrain feature we were on because we were fairly certain we could expect locator probes over night, and it wouldn't get any more favorable than it was right then. We took an indirect route down, and circled back to strike the old French road the Camp sat on about 3 or 4 kilometers west of the Camp.

When we radioed asking about permission to return to the compound we were told that they were pretty sure that “tonight was the night”, and to set out an ambush close to where we were.

We placed our Mike Force in ambush positions and waited. The Americans gathered in the ambush headquarters, and discussed what size unit we would actually tackle. That regiment thing was still a concern because we were down to two platoons plus 10 at this point. We decided that we would spring the ambush on whatever came down the road, and if things got too hot we would E & E to the river several kilometers away, and float downstream at night toward Quang Ngai.

Luckily, we didn't have long to wait, and it was only a Sapper Platoon of 20 or so carrying bamboo Bangalore Torpedoes and small arms. They were headed for the Camp, and had no idea we were anywhere around. Probably thought we were still hunkered down on the ridge 4 or 5 kilometers away.

I was used to ambushes with Montagnard CIDG Forces where only the enemy over 10' tall had anything to worry about. These Mobile Strike Force Mercenaries were disciplined in regard to waiting for the signal to open fire, and when they did they kept it right down where it did the most good. The action was over in seconds, and there were 19 bodies strewn around. We swept through the ambush kill zone, grabbed up all the weapons and Bangalore's we could find, and now we had permission to enter the camp. We quickly discussed the best way to make it back the 3 or 4 clicks now that everybody in the province knew where we were.

We decided that our shit was strong, and that we would head hi-diddle-diddle right down the middle of the road occasionally spraying any roadside cover with automatic weapons and M-79s.

One night we happened to be back in Camp for a change. The Camp was under regular indirect fire from mortars and 122mm rockets. Not continually, but constant enough to be a consideration. We would watch the indigenous soldiers, and if they dove for the trench we would also. A lifetime of familiarity I guess. They could tell from the sound much better than we could if the round was going to be close enough to cause us problems. The Mobile Strike Force was assigned to defend the weaker perimeter where the new I Corps CIDG Training Camp was located.

The old training camp had been co-located with the A-Camp at Cam Duc which had been overrun several months before. There were no bunkers at the wire, only trenches. The Order of Battle Officer for the C-Team, 2LT “Bucky” Knight (I don't know if I ever did know his real name) was out with a CIDG Force manning an OP on a hill south of the Camp. “Bucky” was the only straight leg (non-Airborne qualified) officer I ever knew assigned to Special Forces. Poor bastard caught hell as he walked among all the Green Berets in his baseball cap. We would corner him in the club and ask him ridiculous questions from any piece of literature that happened to be lying around. The questions...well they were for his ARVN E-4 promotion board. “Bucky” radioed in that he had seen headlights (there were NO known vehicles besides the Camp's jeep anywhere even close).

Later, when we had what we thought was a pretty solid triangulation on an NVA rocket and mortar position, we passed the coordinates to our FAC. At this point things were dicey enough that we had a FAC on station continuously, and “Spooky” and “Basketballs” (flare ship) on station during hours of darkness. The FAC brought in a flight of 3 fast movers, and rolled in #1 on his mark. As the last jet passed overhead there were bursts of light following him right across the sky. It almost looked like he was dropping flash cubes. Within seconds there was no sign of aircraft anywhere. No jets. No “Spooky”. No “Basketballs”. Not even the FAC.

A little while later we heard from the FAC that he was “circling just west of Quang Ngai”, and that if we really needed help to give him a call. Something about a track mounted, radar controlled AA gun. There we were... headlights sighted by one of the OPs, no air cover, and about 6 hours of darkness remaining. Close to an hour later we heard one F-4 come streaking in right over the Camp headed west at near tree top level. A few kilometers from Camp he dropped something (probably CBU's) that lit up a grid square. That was the last we heard from their AA gun.

One day we had a visit from the C-Team CO, LTC Schungle. Sort of a pep-talk opportunity. You would think he'd learn. He did the same thing up at Lang Vei and got trapped there when the camp was overrun. Anyway, at the end of his talk he said that if anybody didn't feel right about being out there they could hop on his helicopter for a ride back to Da Nang. No questions asked. The 2 SGTs that were with 3rd Platoon jumped at the chance.

First Platoon and I split what was left of the assets, and that was it. I had never heard of that sort of offer being made before.

That night, while setting out an ambush northeast of Camp, I saw something that I will always remember. The regular Nung 2nd Platoon Leader was on leave when the operation kicked off, and his second in command took over. He was a nice enough guy, but no leader, and he couldn't have found his ass with both hands and a mine detector. Instead of being able to say, "I want the ambush laid out from here to there", and leave it up to him to position his men and assign fields of fire, I always had to do it. That night was no exception. We moved from an assembly area to our ambush site after dark, and while I was positioning each of the platoon members, and was showing them their area of responsibility I looked out, and there, walking along the ambush trail, I could just make out the silhouette of a large Tiger. I knew they were supposed to be native to Southeast Asia, but never thought I would see one of the rare cats. If I hadn't have had to position the men I would have missed that sight.

We spent the next night on the perimeter in Camp, and while we were ducking incoming the OP on a hilltop northwest of the Camp radioed in that they were under ground attack. Even with TAC Air support they were overrun and chased off the hill. The next morning we mounted an operation to retake the OP. With the tactical situation as it was we could not let them hang onto that OP looking directly down on the Camp.

We started for the base of the hill the OP was located on with 2nd Platoon in the lead. I was always at, or near the front of the formation, so being point man of the point platoon moving to contact didn't seem that strange to me. As I was sneaking along a trail in the dense cover right at the base of the hill I felt what seemed like a light nudge on the front of my right shoulder, and heard a shot from less than 15 yards away. I tried to aim my M-16 to return fire, but it wouldn't work quite right. I looked down at my shoulder, and there was a hole through the strap of my indigenous ruck that was weeping a little bit of blood. I thought, hmmm you dumb shit, you just got shot. I dropped and rolled off the trail. A little firefight broke out, but after I saw that the platoon had deployed correctly

I worked my way back to where the U.S. LT and SGT were located in what was laughingly termed the Company Headquarters. I dropped the ruck, and they took a look at the front and back of the wound (good thing I didn't get a look at the back), slapped on a couple of field dressings,

and we called in a med-evac.

The Ha Thanh AO was hot, and at some point a Stars and Stripes Correspondent decided to come out to the Camp. That day he attached himself to us. I couldn't get over how little impact I felt, and it still didn't hurt very badly if I didn't move it, so when the Stars and Stripes guy was hovering like a mother hen, and kept wanting to give me morphine injections I got a little hostile and told him exactly what I was going to do, and where I was going to put that morphine syrette if he didn't get out of my face. He finally got the hint. The med-evac chopper showed up, and that was the end of the fighting for me.

* In addition to the Mobile Strike Force Company sent to Ha Thanh, several days later a company of CIDG with a U.S. lieutenant and sergeant from Minh Long (I believe) was sent out to reinforce A-104 also. The day after I was wounded, in another attempt to retake the OP by the company from Minh Long, the LT was killed, and the SGT wounded (I bumped into the SGT in the hospital in Japan) at the same spot on the ground where I was shot. I learned that Team Sergeant Sosniak was killed about an hour after I was med-evaced when the NVA dumped a 122mm rocket into the Teamhouse.

After my second tour to Vietnam ending in early 1973 (with the 1st Air Cavalry near Bien Hoa, and SRAC in Pleiku) I requested reassignment to 5th Group, which by this time had rotated back to Fort Bragg. While there I ran into SFC Zickefoose, the Intel NCO at A-104. "Zick" told me that after I was evacuated every American at the Camp ended up being killed or wounded. I never confirmed that. I only know of the LT from Minh Long, MSG Sosniak, and a Team member I didn't know listed as KIA in early September. I did notice that a number finished out their tours, so if wounded it must have been lightly.

I did hear that the Air Force knocked out 6 tanks that had by-passed A-104, and were east of the Camp when destroyed.



Helping Seniors Stay Cool

TOP 10 TIPS

- 1 Once temperatures rise, be sure to check on elderly family or friends with regular visits.
- 2 Remind seniors—especially those showing signs of dementia—of the dangers of extreme heat and the signs of heatstroke.
- 3 Certain medications can make it difficult to stay hydrated, so make sure seniors drink 6-8 glasses of water a day, even if they're not thirsty.
- 4 Know the signs of dehydration, including dry mouth/skin, lightheadedness, lack of sweat, low blood pressure and rapid heartbeat.
- 5 Seniors should avoid direct sunlight during the warmest part of the day, apply sunscreen and wear lightweight clothing when outdoors.
- 6 Ensure seniors have access to a working air conditioner during the day.
- 7 Close blinds and curtains in seniors' homes to lower room temperatures.
- 8 Some medical conditions, like asthma or heart conditions, can be more serious during hot weather—discuss with their doctor to see whether medications need to be adjusted.
- 9 Look for signs of heatstroke, including profuse sweating, fatigue, cold/clammy skin, nausea, muscle weakness, disorientation, shallow breathing and vomiting.
- 10 Prepare to directly assist with measures like turning on the AC or removing robes or blankets—even if it means staging a "cooling intervention."



© 2014 Sunrise Senior Living, Inc.

For more senior-friendly health tips, visit:

SunriseSeniorLiving.com/HealthTips



Next Regular Meeting

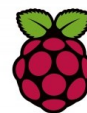
The next meeting will be on Thursday, September 24th, at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance. Access the MRAC Yahoo group for important details about the February Meeting.

Meeting Schedule:

October 29th 2015 - 7 pm

Please do not call the church for information!

The MRAC/MAARS join picnic will be on August 8th, 2015 at Greenfield park, picnic area number 2.



Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:00 p.m.** at **28.490 MHz USB** Our two meter FM net follows at **9:00 p.m.** on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz.**

Visit our website at: www.w9rh.org

Or phone (414)-459-9741



Name of Net, Frequency, Local Time	Net Manager
Badger Weather Net (BWN) 3984 kHz, 0500	W9IXG
Badger Emergency Net (BEN) 3985 kHz, 1200	NX9K
Wisconsin Side Band Net (WSBN) 3985 or 3982.5 kHz, 1700	KB9KEG
Wisconsin Novice Net (WNN) 3555 kHz, 1800	KB9ROB
Wisconsin Slow Speed Net (WSSN) 3555 kHz, Sn, T, Th, F, 1830	NIKSN
Wisconsin Intrastate Net - Early (WIN-E) 3555 kHz, 1900	WB9ICH
Wisconsin Intrastate Net - Late (WIN-L) 3555 kHz, 2200	W9RTP
ARES/RACES Net 3967.0 kHz, 0800 Sunday	WB9WKO
* Net Control Operator needed. Contact Net Manager for information.	

Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the **15th of each month**. If you have anything (announcements, stories, articles, photos, projects) for the 'Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: W9rhmrac@Gmail.com

or by Post to:

Michael B. Harris

807 Nicholson RD

South Milwaukee, WI 53172-1447

VE Testing:

September 26th, 9am—11:30am

No testing: June, August, or December

Location: Amateur Electronic Supply Time: 9:30 AM (Walk-ins allowed)

ALL testing takes place at: Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Area Swapfests

August 2nd, [Hamfesters 81st Annual Hamfest](#)

Location: Peotone, IL

Type: ARRL Hamfest

Website: <http://ham-ham.org>

August 8th, Racine Megacycle FreeFest 2015

Location: Firemans' Park Sturtevant, WI

Type: ARRL Hamfest

Contact: KA0OIL, Dan Miller

MRAC Working Committees

100th Anniversary:

- Dave—KA9WXN
- Dan—N9ASA

Net Committee:

- Pancho, K9OFA

Field Day

- Dave—KA9WXN,
- Al—KC9IJJ

FM Simplex Contest

- Joe – N9UX
- Mark - AB9CD

Ticket drum and drawing

- Tom – N9UFJ

Newsletter Editor

- Michael-KC9CMT

Proofreader

- Pancho-KA9OFA

Webmaster

- Dave, KA9WXN

Refreshments

- Hal—KB9OZN



Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are \$17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information

Our website address <http://www.w9rh.org>

Telephone **(414)-459-9741**

Address correspondence to:

MRAC, PO Box 26233, Milwaukee, WI 53226-0233

Email may be sent to: w9rh@arrl.net . Our YAHOO newsgroup:

<http://groups.yahoo.com/group/MRAC-W9RH/>



CLUB NETS:

- The Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB
- Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz \pm 5 KHz USB.
- Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL



The MRAC HamChatter is a monthly publication of the Milwaukee Radio Amateurs' Club. Serving Amateur Radio in Southeastern Wisconsin & all of Milwaukee County

Club Call sign – W9RH

MRAC Website: <http://www.W9RH.org>

Editor: Michael B. Harris, Kc9cmt, kc9cmt@Earthlink.net

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARRL Newsline

Mon.8:00 PM 146.445+ Emergency Net

Mon.8:00 PM 146.865- Walworth County ARES net

Mon. 8:00 PM 442.100+ Railroad net, also on EchoLink

Mon. 8:45 PM 147.165- ARRL Audio News

Mon. 8:00 PM 442.875+ WIARC net also on EchoLink 576754

**Mon. 8:30 PM 146.820 Waukesha ARES Net —
on the 1st, 3rd, and 5th Monday of each month.**

Mon. 9:00 PM 147.165- Milwaukee County ARES Net

Tue.9:00 AM 50.160 6. Mtr 2nd Shifter's Net

Tue. 9:00 PM 145.130+ MAARS Hand Shakers Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130+MAARS Amateur Radio Newsline

Wed. 8:00 PM 147.045+ West Allis ARC net

Wed. 8:00 PM 28.365Mhz 10/10 International Net

Wed. 8:00 PM 147.270+ Racine County ARES net

Wed. 9:00 PM 145.130+MAARS SwapNet, Allstar FM-38

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 8:00 PM 443.800+ Tech Net

Thur. 9:00 PM 146.910+ Computer Net

Fri. 8:00 PM 28.490 MRAC W9RH 10 Mtr SSB Net

Fri. 9:00 PM 145.390+ W9RH 2 MTR. FM Net

Sat. 7:30 AM MW Classic Radio Net , Freq.—3885 AM

Sat. 8:00 PM 146.910+ YL's Pink HAMsters Net

Sat. 9:00 PM 146.910+ Saturday Night Fun Net

Sun 8:00 AM, State ARES Net 3967/3977.5/145.470

Sun 8:30 AM 3.985 QCWA (Chapter 55) SSB net

Sun 9:00 AM 145.565+ X-Country Simplex Group

Sun 8:00 PM 146.910+ Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.910+ Swap Net

Daily: Milwaukee — Rag Chew Net: 7:00 AM, 3850 SSB + Florida Net 7 am, 14.290 mhz.

2meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz
SSB frequencies below 20 meters are LSB and for 20 Mtr and above are USB.

